THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 20

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte JOSEPH R. LAIA JR., DAVID W. CARROLL, MITCHELL TRKULA, WALLACE E. ANDERSON and STEVEN M. VALONE

Appeal No. 94-3447
Application 07/864,725[1]

ON BRIEF

Before KIMLIN, JOHN D. SMITH and WEIFFENBACH, Administrative Patent Judges.

KIMLIN, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 1-18. Claims 19 and 20, the other claims remaining in the present application, stand withdrawn from consideration. Claims 1, 2, 3 and 11 are illustrative:

1. A process for coating a substrate with diamond comprising:

[1] Application for patent filed April 7, 1992.

maintaining a substrate within a bed of particles capable of being fluidized, said particles having substantially uniform dimensions and said substrate characterized as having different dimensions than the particles;

fluidizing the bed of particles;

depositing a coating of diamond upon the substrate by chemical vapor deposition of a carbon-containing precursor gas mixture, said precursor gas mixture introduced into the fluidized bed of particles in quantities, at pressures and at temperatures, under conditions resulting in excitation mechanisms sufficient to form said diamond coating.

2. The process of Claim 1 wherein the substrate is further characterized as comprised of a different material than the bed particles.

3. The process of Claim 1 wherein the substrate is further characterized as comprised of the same material as the bed particles.

11. A process for coating a substrate with diamond comprising:

maintaining a substrate within a bed of particles capable of being fluidized, said particles having substantially uniform dimensions and said substrate characterized as comprised of a different material than the particles;

fluidizing the bed of particles;

depositing a coating of diamond upon the substrate by chemical vapor deposition of a carbon-containing precursor gas mixture, said precursor gas mixture introduced into the fluidized bed of particles in quantities, at pressures and at temperatures, under conditions resulting in excitation mechanisms sufficient to form said diamond coating.

The examiner relies upon the following references as evidence of obviousness:

Holcombe, Jr. et al. (Holcombe) 4,228,142 Oct. 14, 1980

Pinneo 0 286 310 Dec. 10, 1988
(European patent application)

Appellants submit at page 2 of the principal Brief that claims 1, 2, 6, 11 and 14 should receive separate considerations of patentability. Accordingly, appealed claims 1, 3-5 and 7-10 stand or fall together, as do claims 11-13 and 15-18.

Appealed claims 1-18 stand rejected under 35 U.S.C. § 103 as being unpatentable over Pinneo in view of Holcombe.

Pinneo, like appellants, discloses a process for coating a substrate with diamond comprising maintaining the substrate in a fluidized bed while depositing a coating of diamond upon the substrate by chemical vapor deposition of a carbon-containing precursor gas mixture. Pinneo does not disclose that the fluidized bed comprises the substrate to be coated with diamond within a bed of particles. As appreciated by the examiner, Pinneo discloses only that the fluidized bed comprises the substrate to be coated. However, as noted by the examiner, appellants' claim 3 limitation that the substrate is comprised of the same material as the bed particles results in claim 1 encompassing processes wherein the substrate to be coated and the bed particles are made of the same material. Such interpretation of claim 1 is in accord with the specification disclosure that "[t]he substrate to be coated by the chemical vapor deposition in

the fluidized bed can be comprised of . . . the same material as the bed particles" (page 7 of specification, lines 30-33). When appellants' process employs the same material for the substrate and the bed particles, we fully concur with the examiner that it is reasonable to conclude that there is no patentable distinction between the claimed process and the process disclosed by Pinneo. In re Spada, 911 F.2d 705, 708, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990); In re Best, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). While appealed claim 1 recites that the substrate has "different dimensions" than the bed particles, we agree with the examiner that among the multitude of substrate particles within Pinneo's fluidized bed there would be, of necessity, particles of different dimensions.

Regarding the claim 6 requirement that the substrate is an optical surface of silicon and the like, we agree with the examiner that this feature is met by Pinneo's disclosure of silicon substrate particles. The examiner correctly explains that the broadly claimed "optical surface" encompasses any surface that is reflecting, transparent, refractive, etc.

The examiner's rejection of claims 2 and 11-15 is another matter. These claims require that the substrate and the bed particles are of a different material. Pinneo does not disclose such, and we agree with appellants that one of ordinary skill in

the art would not have been motivated to replace the catalytic matrix of Pinneo with the powdered metal promoter of Holcombe to result in a fluidized bed comprising particles of different materials. The catalyst of Pinneo is a hydrogenation catalyst which dissociates molecular hydrogen, whereas the reactions disclosed by Holcombe (column 2, lines 50-57) do not involve the disassociation of molecular hydrogen. As urged by appellants, the nickel or iron promoter metal of Holcombe is employed to shorten the reaction time between carbon tetrafluoride and either silicon carbide or methyl trichlorosilane. While the examiner makes the argument that "the catalysts/promoters of the two references are both added to increase the yield in the fluidized deposition of diamond" (page 5 of Answer), the much more relevant point is that the two references involve distinctly different reactions. The examiner has not established that the metal promoted reaction of Holcombe would have suggested to one of ordinary skill in the art the use of Holcombe's metal promoters as hydrogenation catalysts in the reaction of Pinneo. Accordingly, we will not sustain the examiner's rejection of claims 2 and 11-15.

In conclusion, based on the foregoing, the examiner's rejection of claims 1, 3-10 and 16-18 is affirmed. The

examiner's rejection of claims 2 and 11-15 is reversed. The examiner's decision rejecting the appealed claims is affirmed-in-part.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED-IN-PART

EDWARD C. KIMLIN Administrative Patent Judge	)	
JOHN D. SMITH Administrative Patent Judge	)	BOARD OF PATENT APPEALS AND INTERFERENCES
CAMERON WEIFFENBACH Administrative Patent Judge	)	

Richard E. Constant
Assistant General Counsel for Patents
GC-42 (FORSTL) MS 6F-067
1000 Independence Ave., S.W., DOE
Washington, DC 20585